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Claim 1. (Amended) A device for switching ATM cells establishing a single path per virtual circuit, having $N.R$ inputs and $N.R$ outputs, N and R being two integers not less than two, the device comprising at least two stages, including an inlet stage ($21; 31; 411_1, \dots, 411_R$) having $R.N$ sets of Q outputs ($213_{11}; 313_{11}; 413_{11}$) and an outlet stage ($22; 33; 421_1, \dots, 422_1, \dots$) having $R.N$ sets of Q' inputs ($222_1; 332_{1,1}; 423_{1,1}$),

characterized in that for the flow of data carried by any intermediate link ($213_i, 222_j; 313_i, 332_j, 413_i, 423_j$) that is part of the single path set up between an input and an output to be a subset of the incoming flux at that input and also a subset of the outgoing flux at that output, each input ($212_i; 312_i; 412_i$) of the inlet stage can be connected to an output of the inlet stage which can be selected only from Q outputs ($213_{11}, \dots, 213_{R1}; 313_1, \dots, 313_{1R}; 413_{11}, \dots, 413_{1R}$) exclusively associated with that input; and

in that each output ($223_1; 333_i; 442_1$) of the outlet stage can be connected to an input of the outlet stage which can be selected only from Q' inputs ($222_{11}, \dots, 222_{1R}; 332_{11}, \dots, 332_{R1}; 423_{11}, \dots, 423_{1R}$) of the outlet stage exclusively associated with that output.

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Claim 3. (Amended) A switching device according to claim 1 including an inlet stage (31), a central stage (32), and an outlet stage (3); characterized:

- in that, Q being equal to R , the inlet stage (31) comprises N matrices ($311_1, \dots$) each having R inputs ($312_i, \dots$) and R^2 outputs ($313_{11}, \dots$), those outputs being organized into R sets of R outputs each corresponding to one of said R inputs, and in that each input (312_i) of that

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matrix can be connected to an output of that matrix which can be selected only from R outputs (313₁₁, ..., 313_{R1}) of the set of outputs corresponding to that input;

- in that the central stage (32) comprises R sets of R matrices (321₁₁, ...) each having N inputs and N outputs, the R outputs of each set of outputs of the inlet stage being connected to inputs belonging to the same set of R matrices of the central stage; and

b5 - in that, Q' being equal to R, said outlet stage (33) comprises N matrices (331₁, ...) each of those matrices having R² inputs (332₁, ...) and R outputs (333₁, ...), those R² inputs being organized into R sets of R inputs, each set respectively corresponding to one of those R outputs; and in that each output (333₁, ...) of that matrix can be connected to an input of that matrix which can be selected only from R inputs (332₁₁, ..., 332_{R1}) of the set of inputs corresponding to that output; and in that the R inputs (322₁₁, ..., 322_{R1}) of each set are respectively connected to R outputs respectively belonging to the R sets of matrices of the central stage (32).
